SCHOOLS/LOCAL GOVERNMENT ENERGY MANAGEMENT PROGRAM

For

MEMPHIS INDEPENDENT SCHOOL DISTRICT Memphis, Texas

An Energy Efficient Partnership Service

of

COMPTROLLER of the STATE of TEXAS
STATE ENERGY CONSERVATION OFFICE
111 E. 17th Street
Austin, Texas 78774

Professional Engineering Services By:

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1.0 EXECUTIVE SUMMARY:

This **Energy Efficient Partnership Service** is provided to public school districts and hospitals as a portion of the state's ***Schools/ Local Government Energy Management Program***; a program sponsored by the **State Energy Conservation Office (SECO)**, a division of the **State of Texas Comptroller of Public Accounts**.

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The service assists these public, non-profit institutions to take basic steps towards energy efficient facility operation. Active involvement in the partnership from the entire administration and staff within the agencies and institutions is critical in developing a customized blueprint for energy efficiency for their facilities.

In April 2009, **SECO** received a request for technical assistance from *Tanya Monroe*, Superintendent for Memphis I.S.D. **SECO** responded by sending ESA **Energy Systems Associates, Inc.**, a registered professional engineering firm, to prepare this preliminary report for the school district. This report is intended to provide support for the district as it determines the most appropriate path for facility renovation, especially as it pertains to the heating and cooling systems around the facility. It is our opinion that significant decreases in annual energy costs, as well as major maintenance cost reductions, can be achieved through the efficiency recommendations provided herein.

This study has focused on energy efficiency and systems operations. To that end, an analysis of the utility usage and costs for **Memphis ISD,** (hereafter known as MISD) was completed by ESA **Energy Systems Associates, Inc**., (hereafter known as *Engineer*) to determine the annual energy cost index (ECI) and energy use index (EUI) for each campus or facility. A complete listing of the Base Year Utility Costs and Consumption is provided in Appendix IV of this report.

Following the utility analysis and a preliminary consultation with Mr. Bridges, a walk-through energy analysis was conducted throughout the campus. Specific findings of this survey and the resulting recommendations for both operation and maintenance procedures and cost-effective energy retrofit installations are identified in Section 6.0 of this report.

We estimate that as much as **$16,525** may be saved annually if all recommended projects are implemented. The estimated installed cost of these projects should total approximately **$129,094**, yielding an average simple payback of **7-3/4** years.

SUMMARY TABLE:

Recommended Project	Estimated Annual Energy Cost Avoidance	Estimated Installation Cost	Predicted Simple Payback Period (Years)
Controls	*$ 16,525*	*$129,094*	*7-3/4 Years*
Total:	**$ 16,525**	**$ 129,094**	**7-3/4 Years**

(See Section 6.0 for a detailed description of each recommended project.)

Although additional savings from reduced maintenance expenses are anticipated, these savings projections are not included in the estimates provided above. As a result, the actual Return of Investment (ROI), for this retrofit program should be even faster than noted within these calculations.

Our final "summary" comment is that **SECO** views the completion and presentation of this report as a beginning, rather than an end, of our relationship with **MISD**. We hope to be ongoing partners in assisting you to implement the recommendations listed in this report. Please call us if you have further questions or comments regarding your Energy Management Issues.

*ESA Energy Systems Associates, Inc. James W. Brown (512) 258-0547

2.0 ENERGY ASSESSMENT PROCEDURE:

Involvement in this on-site analysis program was initiated through completion of a Preliminary Energy Assessment Service Agreement. This PEASA serves as the agreement to form a "partnership" between the client and the State Energy Conservation Office (SECO) for the purposes of energy costs and consumption reduction within owned and operated facilities. After receipt of the PEASA, an on-site visit was conducted by the professional engineering firm contracted by SECO to provide service within that area of the state. A summary of the *Partner's* most recent twelve months of utility bills was provided to the engineer for the preliminary assessment of the Energy Performance Indicators. ESA then toured the facilities to evaluate changes in maintenance, operations and/or equipment which would produce potential savings in energy consumption and cost.

SECO assisted Memphis ISD by providing an Energy Partnership Survey in 1998. At the time, most of Memphis's facilities were above regional averages for both energy consumption and energy cost per square foot. Recommendations included a lighting renovation from T12 to T8 fluorescent lamps and electronic ballasts, and the replacement of some HVAC units. We also recommended the installation of an energy management control system.

3.0 CAMPUS DESCRIPTIONS:

Memphis ISD consists of three campuses. There are two elementary schools, Travis and Austin, along with the middle school and high school.

<u>All Campuses</u>

Memphis ISD buildings are generally between 20 and 40 years old. The high school was originally built in 1966, with no major additions since while the middle school was built in 1990. The buildings are single story brick construction with flat roofs. Flooring throughout much of the building is terrazzo tile, and windows throughout the building are single pane glass with metal frames.

Figure 1. Memphis High School

The campuses are occupied from 6:00AM to 6:00PM during the regular school year, and from 8:00AM to noon during the summer months. There is no summer school, though various parts of the high school building are in use by administrators and staff.

Lighting throughout the district is provided by 32W-T8 fluorescent lamps with electronic ballasts. These help conserve energy and are contributing to Memphis ISD's energy efficiency success. The high school gym is illuminated by twenty-five 400W metal halide lamps.

Figure 2. Aging DX Split System

We recommend the Wattwatchers program, which encourages turning off lights in unoccupied spaces. This is a program that involves the students in monitoring the lights around the school and having them encourage energy efficient practices.

Heating, ventilation and air-conditioning (HVAC) in classrooms is provided by a combination of rooftop units and split systems with natural gas furnaces. Many of these systems are nearing the end of their 15-20 year useful life expectancy. *We recommend the district begin replacing these units through planned obsolescence.* In this method, the district replaces as many of the units each year as the Board will allow, starting with the oldest and most maintenance intensive units in the district. The process continues each year until all of the units have been replaced. Planned replacement of the units is significantly less expensive and problematic than emergency replacement of units. Since the units are recommended to be replaced through planned obsolescence, the costs of replacing all of the units at one time has not been included in the capital expense projects discussed in Section 6.0.

Honeywell building control systems in several of the buildings have been disconnected and no longer controls units throughout the district. Teachers have control of these systems via wall-mounted thermostats in each room. A direct digital control (DDC) system would help the district improve energy performance by ensuring HVAC systems operate only when rooms or buildings are occupied. *We recommend Memphis ISD installs DDC systems throughout the district to improve control over energy-consuming HVAC equipment.*

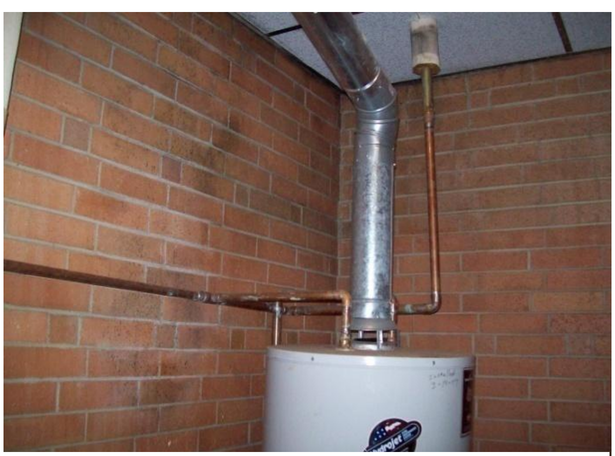


Figure 3. Domestic Hot Water Piping

The district currently uses chemical solution for sanitization in dishwashing equipment. This uses much less energy than booster hot water heaters. However, domestic hot water piping at the hot water heater lacks insulation. *Domestic hot water piping insulation should be installed on exposed piping at water heaters throughout the district.*

4.0 ENERGY PERFORMANCE INDICATORS:

In order to easily assess the *Partner's* energy utilization and current level of efficiency, there are two key "Energy Performance Indicators" calculated within this report.

1. **Energy Utilization Index**

The Energy Utilization Index (EUI) depicts the total annual energy consumption per square foot of building space, and is expressed in "British Thermal Units" (BTU's).

To calculate the EUI, the consumption of electricity and gas are first converted to equivalent BTU consumption via the following formulas:

ELECTRICITY Usage
[Total KWH /yr] x [3413 BTUs/KWH] = ___________ BTUs / yr

NATURAL GAS Usage
[Total MCF/yr] x [1,030,000 BTUs/MCF] = _________ BTUs / yr

After adding the BTU consumption of each fuel, the total BTU's are then divided by the building area.

EUI = [Electricity BTU's + Gas BTU's] divided by [Total square feet]

2. **Energy Cost Index**

The Energy Cost Index (ECI) depicts the total annual energy cost per square foot of building space.

To calculate the ECI, the annual costs of electricity and gas are totaled and divided by the total square footage of the facility:

ECI = [Electricity Cost + Gas Cost] divided by [Total square feet]

These indicators may be used to compare the facility's current cost and usage to past years, or to other similar facilities in the area. Although the comparisons will not provide specific reasons for unusual operation, they serve as indicators that problems may exist within the energy consuming systems.

THE CURRENT ENERGY PERFORMANCE INDICATORS FOR :

MEMPHIS ISD

CAMPUS	ENERGY UTILIZATION INDEX (EUI) (Btu/sf-year)	ENERGY COST INDEX (ECI) ($/sf-year)
2008 Travis ES Campus	**51,794**	**$0.91**
Region 16 2006 Average ES:	55,848	$0.55
1998 Travis ES Campus	47,402	$0.48
2008 Austin ES Campus	**68,497**	**$1.39**
Region 16 2006 Average ES:	55,848	$0.55
1998 Austin ES Campus	61,345	$0.55
2008 Memphis MS Campus	**28,112**	**$0.76**
Region 16 2006 Average MS:	61,177	$0.54
1998 Memphis MS Campus	25,367	$0.40
2008 Memphis HS Campus	**57,476**	**$1.05**
Region 16 2006 Average HS:	74,213	$0.69
1998 Memphis HS Campus	63,914	$0.65

Comparison: Memphis ISD, 2008 to 1998: The district has done well to maintain a relatively even rate of energy consumption on each campus from 1998 to 2008. Travis ES, Austin ES and Memphis MS have increased their EUIs by relatively small amounts at 9%, 12% and 11% respectively. Memphis HS actually reduced its consumption by 10%. However, due to increases in energy rates over the past decade, all schools ECIs are well above their previous values. The ECIs are up 90% for Travis ES, 153% for Austin ES, 90% for Memphis MS and 62% for Memphis HS.

Comparison: Memphis ISD to Regional Averages: The EUIs for the Memphis facilities are generally below regional averages at all four campuses: down 7% for Travis ES, up 23% for Austin ES, down 54% for Memphis Middle School, and down 23% for Memphis High School.

On the other hand, the ECIs are all higher than regional averages for the facilities: 65% for Travis ES, 153% for Austin ES, 41% for Memphis Middle School, and 52% for Memphis High School. One reason for the EUIs being lower while the ECIs are higher is that the regional averages used are from 2006 and therefore a portion of the energy price increases experienced from 2006 are not included in the averages, but are represented in the calculations made for the district's 2007-2008 utility billings.

5.0 RATE SCHEDULE ANALYSIS:

ELECTRIC UTILITY: Southwestern Electric Power Company

ELECTRIC RATE: General Service

CUSTOMER CHARGE = $24.00 per meter

DEMAND CHARGE:
Consumption Charge = $1.90 per kW

Consumption billed per kWh as 200kWh per kW of demand
ENERGY CHARGE: (June through September) = $0.0508 per kWh
ENERGY CHARGE: (October through May) = $0.0358 per kWh

Charge is $0.0043 for all kWh above 200kWh per kW of demand

RIDER FC – FUEL COST FACTOR
ENERGY CHARGE: (February through July) = $0.036301 per kWh
ENERGY CHARGE: (August through January) = $0.024983 per kWh

Therefore, consumption costs vary through four pricing tiers per year:

Month	*June, July*	*August, September*	*October-January*	*February-May*
Consumption	$0.0508	$0.0508	$0.0358	$0.0358
Rider FC	$0.036301	$0.024983	$0.024983	$0.036301
TOTAL	$0.087101	$0.075783	$0.060783	$0.072101

Average Savings for consumption: = $0.071442/kWh
Savings for demand: = $1.90/kW

NATURAL GAS PROVIDER: Greenlight Gas

Rate Schedule Unavailable: Average cost per MCF determined from utility billings.

Total Cost of Natural Gas purchased for Memphis ES's, MS and HS: $23,624
Total Quantity of Natural Gas purchased for Memphis ES's, MS and HS: 2,450 MCF

Cost / Quantity = Average Unit Cost
$ 23,624/2,450 mcf = **$9.64 per mcf of natural gas**

6.0 RECOMMENDATIONS:

A. MAINTENANCE AND OPERATIONS PROCEDURES

1. Clean filters at least every 3 months; more often if needed.
2. Clean fluorescent light fixture lenses.
3. Install hail guards on outdoor coils.
4. Instruct teachers regarding night set back energy savings.
5. Weather-strip around movable portions of exterior door and operable window frames.
6. S*tationary sections of window and door frames should be recaulked as needed.*
7. Implement SECO's Watt Watcher program to turn lights off in unoccupied areas. *The Watt Watcher program gets the students involved with helping to have lights turned off when not in use. Refer to Appendix VII for more information on the Watt Watcher Program*

B. CAPITAL EXPENSE PROJECTS

I. Energy Management and Control System (EMCS) Upgrade.

Upgrade the existing manual, wall-mounted thermostats to a DDC energy management system.

Travis ES			
	Estimated Installed Cost	=	$30,289
	Estimated Energy Cost Savings	=	$3,367
	Simple Payback Period	=	9 Years
Austin ES			
	Estimated Installed Cost	=	$16,729
	Estimated Energy Cost Savings	=	$2,788
	Simple Payback Period	=	6 Years
Memphis MS			
	Estimated Installed Cost	=	$18,639
	Estimated Energy Cost Savings	=	$1,243
	Simple Payback Period	=	15 Years
Memphis HS			
	Estimated Installed Cost	=	$63,887
	Estimated Energy Cost Savings	=	$9,127
	Simple Payback Period	=	7 Years
SUMMARY:	**Estimated Installed Cost**	**=**	**$129,094**
	Estimated Energy Cost Savings	**=**	**$ 16,525**
	Simple Payback Period	**=**	**7-3/4 Years**

Financing of these projects may be provided using a variety of methods as Bond Programs, municipal leases, or state financing programs like the SECO LoanSTAR Program.

In-House Funding	=	$ 129,094		
10 year commercial loan principal	=	$ 129,094		
10 year commercial loan interest (5%) paid	=	$ 35,215		
10 year commercial loan TOTAL	=	$ 164,309		
Commercial Loan Annual Payment	=	$ 1,369/month	=	$ 16,428/yr
Total Annual Payment Minus Annual Energy Cost Savings	=	$16,428 – 16,525	=	$ -97
Annual Cost to ISD (without considering Maintenance Cost Reduction)			**=**	**$ 97**

More information regarding financial programs available to MISD can be found in:

APPENDIX I: *SUMMARY OF FUNDING AND PROCUREMENT OPTIONS FOR CAPITAL EXPENDITURE PROJECTS*

APPENDIX I

SUMMARY OF FUNDING AND PROCUREMENT OPTIONS FOR CAPITAL EXPENDITURE PROJECTS

SUMMARY OF FUNDING OPTIONS FOR CAPITAL EXPENDITURE PROJECTS
Several options are available for funding retrofit measures which require capital expenditures.

LoanSTAR Program:
The Texas LoanSTAR program is administered by the State Energy Conservation Office (SECO). It is a revolving loan program available to all public school districts in the state as well as other institutional facilities. SECO loans money at 3% interest for the implementation of energy conservation measures which have a combined payback of eight years or less. The amount of money available varies, depending upon repayment schedules of other facilities with outstanding loans, and legislative actions. Check with Theresa Sifuentes of SECO (512-463-1896) for an up-to-date evaluation of prospects for obtaining a loan in the amounts desired.

TASB (Texas Association Of School Boards) Capital Acquisition Program:
TASB makes loans to school districts for acquiring personal property for "maintenance purposes". Energy conservation measures are eligible for these loans. The smallest loan TASB will make is $100,000. Financing is at 4.4% to 5.3%, depending upon length of the loan and the school district's bond rating. Loans are made over a three year, four year, seven year, or ten year period. The application process involves filling out a one page application form, and submitting the school district's most recent budget and audit. Contact Cheryl Kepp at TASB (512-467-0222) for further information.

Loans On Commercial Market:
Local lending institutions are another source for the funding of desired energy conservation measures. Interest rates obtainable may not be as attractive as that offered by the LoanSTAR or TASB programs, but advantages include "unlimited" funds available for loan, and local administration of the loan.

Leasing Corporations:
Leasing corporations have become increasingly interested in the energy efficiency market. The financing vehicle frequently used is the municipal lease. Structured like a simple loan, a municipal leasing agreement is usually a lease-purchase agreement. Ownership of the financed equipment passes to the district at the beginning of the lease, and the lessor retains a security interest in the purchase until the loan is paid off. A typical lease covers the total cost of the equipment and may include installation costs. At the end of the contract period a nominal amount, usually a dollar, is paid by the lessee for title to the equipment.

Bond Issue:
The may choose to have a bond election to provide funds for capital improvements. Because of its political nature, this funding method is entirely dependent upon the mood of the voters, and may require more time and effort to acquire the funds than the other alternatives.

SUMMARY OF PROCUREMENT OPTIONS FOR CAPITAL EXPENDITURE PROJECTS

State Purchasing:
The General Services Commission has competitively bid contracts for numerous items which are available for direct purchase by school districts. Contracts for this GSC service may be obtained from Sue Jager at (512) 475-2351.

Design/Bid/Build (Competitive Bidding):
Plans and specifications are prepared for specific projects and competitive bids are received from installation contractors. This traditional approach provides the district with more control over each aspect of the project, and task items required by the contractors are presented in detail.

Design/Build:
These contracts are usually structured with the engineer and contractor combined under the same contract to the owner. This type team approach was developed for fast-track projects, and to allow the contractor a position in the decision making process. The disadvantage to the district is that the engineer is not totally independent and cannot be completely focused upon the interest of the district. The district has less control over selection of equipment and quality control.

Purchasing Standardization Method:
This method will result in significant dollar savings if integrated into planned facility improvements. For larger purchases which extend over a period of time, standardized purchasing can produce lower cost per item expense, and can reduce immediate up-front expenditures. This approach includes traditional competitive bidding with pricing structured for present and future phased purchases.

Performance Contracting:
Through this arrangement, an energy service company (ESCO) using in-house or third party financing to implement comprehensive packages of energy saving retrofit projects. Usually a turnkey service, this method includes an initial assessment of energy savings potential, design of the identified projects, purchase and installation of the equipment, and overall project management. The ESCO guarantees that the cost savings generated will, at a minimum, cover the annual payment due over the term of the contract. The laws governing Performance Contracting for school districts are detailed in the Texas Education Code, Subchapter Z, Section 44.901. Senate Bill SB 3035, passed by the seventy-fifth Texas Legislature, amends some of these conditions. Performance Contracting is a highly competitive field, and interested districts may wish to contact Theresa Sifuentes of State Energy Conservation Office, (SECO), at 512-463-1896 for assistance in preparing requests for proposals or requests for qualifications.

Solution Center

How to Finance Your Energy Program

Cost and financing issues are pivotal factors in determining which energy-efficiency measures will be included in your final energy management plan. Before examining financing options, you need to have a reasonably good idea of the measures that may be implemented. For this purpose, you will want to perform cost/benefit analyses on each candidate measure to identify those with the best investment potential. This document presents a brief introduction to cost/benefit methods and then suggests a variety of options for financing your program.

Selecting a Cost/Benefit Analysis Method

Cost/benefit analysis can determine if and when an improvement will pay for itself through energy savings and to help you set priorities among alternative improvement projects. Cost/benefit analysis may be either a simple payback analysis or the more sophisticated life cycle cost analysis. Since most electric utility rate schedules are based on both consumption and peak demand, your analyst should be skilled at assessing the effects of changes in both electricity use and demand on total cost savings, regardless of which type of analysis is used. Before beginning any cost/benefit analyses, you must first determine acceptable design alternatives that meet the heating, cooling, lighting, and control requirements of the building being evaluated. The criteria for determining whether a design alternative is "acceptable" includes reliability, safety, conformance with building codes, occupant comfort, noise levels, and space limitations. Since there will usually be a number of acceptable alternatives for any project, cost/benefit analysis allows you to select those that have the best savings potential.

Simple Payback Analysis

A highly simplified form of cost/benefit analysis is called simple payback. In this method, the total first cost of the improvement is divided by the first-year energy cost savings produced by the improvement. This method yields the number of years required for the improvement to pay for itself.

This kind of analysis assumes that the service life of the energy-efficiency measure will equal or exceed the simple payback time. Simple payback analysis provides a relatively easy way to examine the overall costs and savings potentials for a variety of project alternatives. However, it does not consider a number of factors that are difficult to predict, yet can have a significant impact on cost savings. These factors may be considered by performing a life-cycle cost (LCC) analysis.

Simple Payback

As an example of simple payback, consider the lighting retrofit of a 10,000-square-foot commercial office building. Relamping with T-8 lamps and electronic, high-efficiency ballasts may cost around \$13,300 (\$50 each for 266 fixtures) and produce annual savings of around \$4,800 per year (80,000 kWh at \$0.06/kWh). This simple payback for this improvement would be

$$\frac{\$13{,}300}{\$4{,}800/\text{year}} = 2.8 \text{ years}$$

That is, the improvement would pay for itself in 2.8 years, a 36% simple return on the investment (1/2.8 = 0.36).

Life-Cycle Cost Analysis

Life-cycle cost analysis (LCC) considers the total cost of a system, device, building, or other capital equipment or facility over its anticipated useful life. LCC analysis allows a comprehensive assessment of all anticipated costs associated with a design alternative. Factors commonly considered in LCC analyses include initial capital cost, operating costs, maintenance costs, financing costs, the expected useful life of equipment, and its future salvage values. The result of the LCC analysis is generally expressed as the value of initial and future costs in today's dollars, as reflected by an appropriate discount rate.

The first step in this type of analysis is to establish the general study parameters for the

continued

How to Finance Your Energy Program *continued*

project, including the base date (the date to which all future costs are discounted), the service date (the date when the new system will be put into service), the study period (the life of the project or the number of years over which the investor has a financial interest in the project), and the discount rate. When two or more design alternatives are compared (or even when a single alternative is compared with an existing design), these variables must be the same for each to assure that the comparison is valid. It is meaningless to compare the LCC of two or more alternatives if they are computed using different study periods or different discount rates.

Decision makers in both the public and private sectors have long used LCC analysis to obtain an objective assessment of the total cost of owning, operating, and maintaining a building or building system improvement over its useful life. Nevertheless, an LCC analysis does require a good understanding of acceptable alternatives, useful life, equipment efficiencies, and discount rates.

Selecting the "Best" Alternatives

Generally, all project alternatives should be screened using simple payback analyses. A more detailed and costly LCC analysis should be reserved for large projects or those improvements that entail a large investment, since a detailed cost analysis would then be a small part of the overall cost. Both simple payback and LCC analyses will allow you to set priorities based on measures that represent the greatest return on investment. In addition, these analyses can help you select appropriate financing options:

- Energy-efficiency measures with short payback periods, such as one to two years, are economically very attractive and should be implemented using operating reserves or other readily available internal funds, if possible.
- Energy-efficiency measures with payback periods from three to five years may be considered for funding from available internal capital investment monies, or may be attractive candidates for third-party financing through energy service companies or equipment leasing arrangements.
- Frequently, short payback measures can be combined with longer payback measures (10 years or more) in order to increase the number of measures that can be cost-effectively included in a project. Projects that combine short- and long-term paybacks are recommended to avoid "cream-skimming" (implementing only those measures that are highly cost effective and have quick paybacks) at the expense of other worthwhile measures. A selected set of measures with a combination of payback periods can be financed either from available internal funds or through third party alternatives.

If simple payback time is long, 10 or more years, economic factors can be very significant and LCC analysis is recommended. In contrast, if simple payback occurs within three to five years, more detailed LCC analysis may not be necessary, particularly if price and inflation changes are assumed to be moderate.

Weighing Non-Cost Impacts

Some factors related to building heating, air conditioning, and lighting system design are not considered in either simple payback or LCC analyses. Examples include the thermal comfort of occupants in a building and the adequacy of task lighting, both of which affect productivity. A small loss in productivity due to reduced comfort or poor lighting can quickly offset any energy cost savings.

Conventional cost/benefit analyses also normally do not consider the ancillary societal benefits that can result from reduced energy use (e.g., reduced carbon emissions, improved indoor air quality). In some cases, these ancillary benefits can be assigned an agreed upon monetary value, but the values to be used are strongly dependent on local factors. In general, if societal benefits have been assigned appropriate monetary values by a local utility, they can be easily considered in your savings calculations. However, your team should discuss this issue with your local utility or with consultants working on such values in your area.

Finally, in any cost analysis, it can be very important to include avoided cost as part of the benefit of the retrofit. When upgrading or replacing building equipment, the avoided cost of maintaining existing equipment should be considered a cost savings provided by the improvement.

How to Finance Your Energy Program *continued*

Financing Mechanisms

Capital for energy-efficiency improvements is available from a variety of public and private sources, and can be accessed through a wide and flexible range of financing instruments. While variations may occur, there are five general financing mechanisms available today for investing in energy-efficiency:

- **Internal Funds.** Energy-efficiency improvements are financed by direct allocations from an organization's own internal capital or operating budget.
- **Debt Financing.** Energy-efficiency improvements are financed with capital borrowed directly by an organization from private lenders.
- **Lease or Lease-Purchase Agreements.** Energy-efficient equipment is acquired through an operating or financing lease with no up-front costs, and payments are made over five to ten years.
- **Energy Performance Contracts.** Energy-efficiency measures are financed, installed, and maintained by a third party, which guarantees savings and payments based on those savings.
- **Utility Incentives.** Rebates, grants, or other financial assistance are offered by an energy utility for the design and purchase of certain energy-efficient systems and equipment.

These financing mechanisms are not mutually exclusive (i.e., an organization may use several of them in various combinations). The most appropriate set of options will depend on the size and complexity of a project, internal capital constraints, in-house expertise, and other factors. Each of these mechanisms is discussed briefly below, followed by some additional funding sources and considerations.

Internal Funds

The most direct way for the owner of a building or facility to pay for energy-efficiency improvements is to allocate funds from the internal capital or operating budget. Financing internally has two clear advantages over the other options discussed below -- it retains internally all savings from increased energy-efficiency, and it is usually the simplest option administratively. The resulting savings may be used to decrease overall operating expenses in future years or retained within a revolving fund used to support additional efficiency investments. Many public and private organizations regularly finance some or all of their energy-efficiency improvements from internal funds.

In some instances, competition from alternative capital investment projects and the requirement for relatively high rates of return may limit the use of internal funds for major, standalone investments in energy-efficiency. In most organizations, for example, the highest priorities for internal funds are business or service expansion, critical health and safety needs, or productivity enhancements. In both the public and private sectors, capital that remains available after these priorities have been met will usually be invested in those areas that offer the highest rates of return. The criteria for such investments commonly include an annual return of 20 percent to 30 percent or a simple payback of three years or less.

Since comprehensive energy-efficiency improvements commonly have simple paybacks of five to six years, or about a 12 percent annual rate of return, internal funds often cannot serve as the sole source of financing for such improvements. Alternatively, however, internal funding can be used well and profitably to achieve more competitive rates of return when combined with one or more of the other options discussed below.

Debt Financing

Direct borrowing of capital from private lenders can be an attractive alternative to using internal funds for energy-efficiency investments. Financing costs can be repaid by the savings that accrue from increased energy-efficiency. Additionally, municipal governments can often issue bonds or other long-term debt instruments at substantially lower interest rates than can private corporate entities. As in the case of internal funding, all savings from efficiency improvements (less only the cost of financing) are retained internally.

Debt financing is administratively more complex than internal funding, and financing costs will vary according to the credit rating of the borrower. This approach may also be restricted by formal debt ceilings imposed by municipal

3

How to Finance Your Energy Program *continued*

policy, accounting standards, and/or Federal or state legislation.

In general, debt financing should be considered for larger retrofit projects that involve multiple buildings or facilities. When considering debt financing, organizations should weigh the cost and complexity of this type of financing against the size and risk of the proposed projects.

Lease and Lease-Purchase Agreements

Leasing and lease-purchase agreements provide a means to reduce or avoid the high, up-front capital costs of new, energy-efficient equipment. These agreements may be offered by commercial leasing corporations, management and financing companies, banks, investment brokers, or equipment manufacturers. As with direct borrowing, the lease should be designed so that the energy savings are sufficient to pay for the financing charges. While the time period of a lease can vary significantly, leases in which the lessee assumes ownership of the equipment generally range from five to ten years. There are several different types of leasing agreements, as shown in the sidebar. Specific lease agreements will vary according to lessor policies, the complexity of the project, whether or not engineering and design services are included, and other factors.

Energy Performance Contracts

Energy performance contracts are generally financing or operating leases provided by an Energy Service Company (ESCo) or equipment manufacturer. The distinguishing features of these contracts are that they provide a guarantee on energy savings from the installed retrofit measures, and they provide payments to the ESCo from the savings, freeing the customer from any need of up-front payments to the ESCo. The contract period can range from five to 15 years, and the customer is required to have a certain minimum level of capital investment (generally $200,000 or more) before a contract will be considered.

Under an energy performance contract, the ESCo provides a service package that typically includes the design and engineering, financing, installation, and maintenance of retrofit measures to improve energy-efficiency. The scope of these improvements can range from measures that affect a single part of a building's energy-using

Types of Leasing Agreements

Operating Leases are usually for a short term, occasionally for periods of less than one year. At the end of the lease period, the lessee may either renegotiate the lease, buy the equipment for its fair market value, or acquire other equipment. The lessor is considered the owner of the leased equipment and can claim tax benefits for its depreciation.

Financing Leases are agreements in which the lessee essentially pays for the equipment in monthly installments. Although payments are generally higher than for an operating lease, the lessee may purchase the equipment at the end of the lease for a nominal amount (commonly $1). The lessee is considered the owner of the equipment and may claim certain tax benefits for its depreciation.

Municipal Leases are available only to tax-exempt entities such as school districts or municipalities. Under this type of lease, the lessor does not have to pay taxes on the interest portion of the lessee's payments, and can therefore offer an interest rate that is lower than the rate for usual financing leases. Because of restrictions against multi-year liabilities, the municipality specifies in the contract that the lease will be renewed year by year. This places a higher risk on the lessor, who must be prepared for the possibility that funding for the lease may not be appropriated. The lessor may therefore charge an interest rate that is as much as 2 percent above the tax-exempt bond rate, but still lower than rates for regular financing leases. Municipal leases nonetheless are generally faster and more flexible financing tools than tax-exempt bonds.

Guaranteed Savings Leases are the same as financing or operating leases but with the addition of a guaranteed savings clause. Under this type of lease, the lessee is guaranteed that the annual payments for leasing the energy-efficiency improvements will not exceed the energy savings generated by them. The owner pays the contractor a fixed payment per month. If actual energy savings are less than the fixed payment, however, the owner pays only the small amount saved and receives a credit for the difference.

How to Finance Your Energy Program *continued*

infrastructure (such as lighting) to a complete package of measures for multiple buildings and facilities. Generally, the service provider will guarantee savings as a result of improvements in both energy and maintenance efficiencies. Flat-fee payments tend to be structured to maintain a positive cash flow to the customer with whom the agreement is made. With the increasing deregulation of conventional energy utilities, several larger utilities have formed unregulated subsidiaries that offer a full range of energy-efficiency services under performance agreements.

An energy performance contract must define the methodology for establishing the baseline costs and cost savings and for the distribution of those savings among the parties. The contract must also specify how those savings will be determined, and must address contingencies such as utility rate changes and variations in the use and occupancy of a building. While several excellent guidance documents exist for selecting and negotiating energy performance contracts, large or complicated contracts should be negotiated with the assistance of experienced legal counsel.

Utility Incentives

Some utilities still offer financial incentives for the installation of energy-efficient systems and equipment, although the number and extent of such programs appears to be decreasing as utility deregulation proceeds. These incentives are available for a variety of energy-efficient products including lighting, HVAC systems, energy management controls, and others. The most common incentives are equipment rebates, design assistance, and low-interest loans.

In general, the primary purpose of utility incentives is to lower peak demand; overall energy-efficiency is an important, but secondary consideration. Incentives are much more commonly offered by electric utilities than by natural gas utilities.

Additional Financing Sources and Considerations

State and Federal Assistance. Matching grants, loans, or other forms of financial assistance (in addition to those listed above) may be available from the Federal government or state governments. If your community is considering energy-efficiency improvements for public or assisted multifamily housing, your program could be eligible to receive assistance through various programs of the U.S. Department of Housing and Urban Development. A variety of state-administered programs for building efficiency improvements may also be available, some of which are funded through Federal block grants and programs. Federal assistance available through states include Federal block grants and State Energy Conservation Program funds. An example of individual state programs is the Texas LoanSTAR program, which provides low-interest loans for state agencies and schools.

Utility Assistance

Equipment Rebates. Some utilities offer rebates on the initial purchase price of selected energy-efficient equipment. The amount of the rebate varies substantially depending on the type of equipment. For example, a rebate of $.50 to $1 may be offered for the replacement of an incandescent bulb with a more efficient fluorescent lamp, while the installation of an adjustable speed drive may qualify for a rebate of $10,000 or more.

Design Assistance. A smaller number of utilities provide direct grants or financial assistance to architects and engineers for incorporating energy-efficiency improvements in their designs. This subsidy can be based on the square footage of a building, and/or the type of energy-efficiency measures being considered. Generally, a partial payment is made when the design process is begun, with the balance paid once the design has been completed and installation has commenced.

Low-Interest Loans. Loans with below-market rates are provided by other utilities for the purchase of energy-efficient equipment and systems. Typically, these low-interest loans will have an upper limit in the $10,000 to $20,000 range, with monthly payments scheduled over a two- to five-year period.

How to Finance Your Energy Program *continued*

Bulk Purchasing. Large organizations generally have purchasing or materials procurement departments that often buy standard materials in bulk or receive purchasing discounts because of the volume of their purchases. Such organizations can help reduce the costs of energy-efficiency renovations if their bulk purchasing capabilities can be used to obtain discounts on the price of materials (e.g., lamps and ballasts). While some locales may have restrictions that limit the use of this option, some type of bulk purchasing can usually be negotiated to satisfy all parties involved.

Project Transaction Costs. Certain fixed costs are associated with analyzing and installing energy measures in each building included in a retrofit program. Each additional building, for example, could represent additional negotiations and transactions with building owners, building analysts, energy auditors, equipment installers, commissioning agents, and other contractors. Similarly, each additional building will add to the effort involved in initial data analysis as well as in tracking energy performance after the retrofit. For these reasons, it is often possible to achieve target energy savings at lower cost by focusing only on those buildings that are the largest energy users. One disadvantage with larger buildings is that the energy systems in the building can be more difficult to understand, but overall, focusing on the largest energy users is often the most efficient use of your financial resources.

Direct Value-Added Benefits. The primary value of retrofits to buildings and facilities lies in the reduction of operating costs through improved energy-efficiency and maintenance savings. Nevertheless, the retrofit may also directly help address a variety of related concerns, and these benefits (and avoided costs) should be considered in assessing the true value of an investment. A few examples of these benefits include the improvement of indoor air quality in office buildings and schools; easier disposal of toxic or hazardous materials found in energy-using equipment; and assistance in meeting increasingly stringent state or Federal mandates for water conservation. Effective energy management controls for buildings can also provide a strong electronic infrastructure for improving security systems and telecommunications.

Economic Development Benefits. In addition to direct savings on operating costs and the added-value benefits mentioned above, investments in energy-efficiency can also support a community's economic development and employment opportunities. Labor will typically constitute about 60 percent of a total energy investment, and about 50 percent of equipment can be expected to be purchased from local equipment suppliers; as a result, about 85 percent of the investment is retained within the local economy. Additionally, funds retained in urban areas will generally be re-spent in the local economy. The Department of Commerce estimates that each dollar retained in an urban area will be re-spent three times. This multiplier effect results in a three-fold increase in the economic benefits of funds invested in energy-efficiency, without even considering the savings from lower overall fuel costs.

For more information contact the Rebuild America Clearinghouse at 252-459-4664 or visit www.rebuild.gov

Rebuild America
U.S. Dept. of Energy

6

APPENDIX II

ELECTRIC UTILITY RATE SCHEDULE

Southwestern Electric Power Company
Tariff for Electric Service
Section Title: Rate Schedules
Schedule No.: 1.3 Sheet: 6
Effective Date: First Billing Cycle of February 2007
Applicable: North Texas Service Territory

1.3 GENERAL SERVICE (GS)

AVAILABILITY

This rate schedule is available only to Customers with a maximum metered load of not more than 1,000 kilowatts for general service for which no other specific rate schedule is provided, where service is provided at one point of delivery and measured through one meter.

TYPE OF SERVICE

Customer shall take single or three-phase service at any one standard secondary or primary voltage available from the Company's point of delivery.

MONTHLY BILL

Rate: $24.00 Customer Charge
$ 1.90 per kW of Billing Demand

Billing Months of June through September	Billing Months of October through May
$0.0508 per kWh for first 200 kWh per kW of billing demand	$0.0358 per kWh for first 300 kWh per kW of billing demand
$0.0043 all additional kWh	$0.0043 all additional kWh

Primary Service Credit: $0.70 per kW of billing demand plus $0.0003 per kWh when service is provided at the available standard primary voltage.

Minimum Monthly Bill: Customer Charge; but not less than $0.40 per kVa of capacity installed to serve Customer's load (excluding Fuel Cost Recovery Charge)

Fuel Cost Recovery Charge: See Fixed Fuel Factor Schedule.

Gross Receipts Fee Adjustment: Subject to Rate GRFA.

Southwestern Electric Power Company
Tariff for Electric Service
Section Title: Rate Schedules
Schedule No.: 1.3 Sheet: 7
Effective Date: First Billing Cycle of February 2007
Applicable: North Texas Service Territory

1.3 GENERAL SERVICE (GS)

DETERMINATION OF BILLING DEMAND

The demand will be measured and shall be the average kilowatt load used by the Customer during the 15-minute period of maximum use during the month, but not less than the minimum billing demand. The Billing Demand will be subject to the Power Factor Clause.

POWER FACTOR CLAUSE

The Company reserves the right to determine the power factor of the Customer's installation service hereunder. Should the average lagging power factor during the month be determined to be below 95%, the kW of Billing Demand will be adjusted by multiplying the kW of Billing Demand by 95% and dividing by the average lagging power factor.

METER ADJUSTMENT

If the Customer's load is metered on the high-voltage side of a transformer owned by the Company or is metered on the low-voltage side of a Customer-supplied transformer, metered kWh and kW will be adjusted. The adjustment will decrease the recorded metered quantities for loads metered on the high side of Company-owned transformers and will increase the recorded metered quantities for loads metered on the low side of Customer-supplied transformers. The adjustment shall be calculated by multiplying the recorded metered quantities by the appropriate adjustment factor listed below.

Intervening Equipment	Adjustment Factor
Substation Transformer	1.0%
Distribution Transformer	2.2%

Southwestern Electric Power Company
Tariff for Electric Service
Section Title: Rate Schedules
Schedule No.: 1.3 Sheet: 8
Effective Date: First Billing Cycle of February 2007
Applicable: North Texas Service Territory

INTERMITTENT ELECTRICAL LOADS AND LIMITATIONS ON ADVERSE EFFECTS

Customer shall not, without Company's consent, connect or operate equipment that produces voltage fluctuations, interference or distorted waveforms that adversely affect service to other customers or that may be detrimental to the Company's delivery system. SEE THE COMPANY'S SERVICE TERRITORY SERVICE RULES AND REGULATIONS.

GENERAL TERMS

THIS RATE IS SUBJECT TO THE PROVISIONS OF THE COMPANY'S NORTH TEXAS SERVICE TERRITORY SERVICE RULES AND REGULATIONS.

APPENDIX III

UTILITIES CONSUMPTION HISTORY

OWNER: Memphis ISD **BUILDING:** Travis ES

MONTH / YEAR		ELECTRIC					NAT'L GAS / FUEL	
			DEMAND					
		CONSUMPTION	METERED	CHARGED	COST OF DEMAND	TOTAL ALL ELECTRICAL	CONSUMPTION	$
MONTH	YEAR	KWH	KW/KVA	KW/KVA	$	COSTS $	MCF	COSTS
MAY	2008	16,469	0	0	0	1,598	5	$99
JUNE	2008	20,170	0	0	0	1,928	1	$27
JULY	2008	16,943	0	0	0	1,520	1	$33
AUGUST	2008	16,584	0	0	0	1,193	2	$37
SEPTEMBER	2008	20,866	0	0	0	1,412	5	$75
OCTOBER	2008	17,165	0	0	0	1,324	23	$225
NOVEMBER	2008	15,484	0	0	0	1,235	69	$580
DECEMBER	2008	21,328	0	0	0	1,798	152	$1,534
JANUARY	2009	24,159	0	0	0	1,833	171	$1,718
FEBRUARY	2009	19,724	0	0	0	1,849	100	$828
MARCH	2009	17,289	0	0	0	1,600	64	$503
APRIL	2009	14,569	0	0	0	1,313	31	$256
TOTAL		**220,750**	**0**	**0**	**0**	**$18,602**	**622**	**$5,915**

Annual Total Energy Cost =	$24,517	Per Year	
Total KWH x 0.003413 =	753.42	x 106	
Total MCF x 1.03 =	641.07	x 106	
Total Other x ____		x 106	
Total Site BTU's/yr	1,394.49	x 106	
Floor area:	26,924	s.f.	

Energy Use Index:
Total Site BTU's/yr / Total Area (sq.ft.) 51,794 BTU/s.f.yr

Energy Cost Index:
Total Energy Cost/yr / Total Area (sq.ft.) $0.91 $/s.f. yr

Electric Utility		Account #	Meter#
	0.0	9611715270	221417579
	0	9636440150	221142939
		9675354360	435734732
		9676297280	428307828
		9608695090	19486992

Gas Utility	Account #
Greenlight Gas	0
	0

OWNER: Memphis ISD **BUILDING:** Austin ES

MONTH / YEAR		ELECTRIC					NAT'L GAS / FUEL	
			DEMAND					
		CONSUMPTION	METERED	CHARGED	COST OF DEMAND	TOTAL ALL ELECTRICAL	CONSUMPTION	$
MONTH	YEAR	KWH	KW/KVA	KW/KVA	$	COSTS $	MCF	COSTS
MAY	2008	12,500	0	0	0	1,273	9	$152
JUNE	2008	16,616	0	0	0	1,786	4	$82
JULY	2008	15,601	0	0	0	1,422	6	$127
AUGUST	2008	15,686	0	0	0	1,355	7	$95
SEPTEMBER	2008	17,296	0	0	0	1,680	0	$0
OCTOBER	2008	14,751	0	0	0	1,297	18	$200
NOVEMBER	2008	12,287	0	0	0	1,108	42	$356
DECEMBER	2008	13,612	0	0	0	1,124	105	$1,066
JANUARY	2009	13,837	0	0	0	1,195	112	$1,137
FEBRUARY	2009	14,774	0	0	0	1,374	49	$417
MARCH	2009	14,631	0	0	0	1,600	44	$348
APRIL	2009	11,781	0	0	0	1,350	19	$165
TOTAL		**173,372**	**0**	**0**	**0**	**$16,563**	**414**	**$4,145**

Annual Total Energy Cost = $20,708 Per Year

Total KWH x 0.003413 = 591.72 x 106
Total MCF x 1.03 = 426.83 x 106
Total Other x ____ x 106
Total Site BTU's/yr 1,018.55 x 106

Floor area: 14,870 s.f.

Energy Use Index:
Total Site BTU's/yr / Total Area (sq.ft.) 68,497 BTU/s.f.yr

Energy Cost Index:
Total Energy Cost/yr / Total Area (sq.ft.) $1.39 $/s.f. yr

Electric Utility	**Account #**	**Meter#**	**Gas Utility**	**Account #**
	9694848950	14729355		

OWNER: Memphis ISD **BUILDING:** Memphis MS

MONTH / YEAR		ELECTRIC					NAT'L GAS / FUEL	
			DEMAND					
		CONSUMPTION	METERED	CHARGED	COST OF DEMAND	TOTAL ALL ELECTRICAL	CONSUMPTION	$
MONTH	YEAR	KWH	KW/KVA	KW/KVA	$	COSTS $	MCF	COSTS
MAY	2008	9,680	0	0	0	990	0	$17
JUNE	2008	10,480	0	0	0	1,238	0	$17
JULY	2008	6,560	0	0	0	806	0	$17
AUGUST	2008	8,160	0	0	0	893	0	$17
SEPTEMBER	2008	12,400	0	0	0	1,308	0	$17
OCTOBER	2008	11,040	0	0	0	1,014	0	$17
NOVEMBER	2008	8,560	0	0	0	813	7	$76
DECEMBER	2008	9,520	0	0	0	867	30	$322
JANUARY	2009	8,720	0	0	0	761	27	$287
FEBRUARY	2009	9,120	0	0	0	921	7	$77
MARCH	2009	10,320	0	0	0	1,170	4	$51
APRIL	2009	6,800	0	0	0	770	7	$68
TOTAL		**111,360**	**0**	**0**	**0**	**$11,551**	**83**	**$983**

Annual Total Energy Cost = $12,534 Per Year

Total KWH x 0.003413 = 380.07 x 106
Total MCF x 1.03 = 85.70 x 106
Total Other x ____ x 106
Total Site BTU's/yr 465.77 x 106

Floor area: 16,568 s.f.

Energy Use Index:
Total Site BTU's/yr / Total Area (sq.ft.) 28,112 BTU/s.f.yr

Energy Cost Index:
Total Energy Cost/yr / Total Area (sq.ft.) $0.76 $/s.f. yr

Electric Utility	**Account #**	**Meter#**	**Gas Utility**	**Account #**
	9678617280	428976478		

OWNER: Memphis ISD **BUILDING:** Memphis HS

MONTH / YEAR		ELECTRIC					NAT'L GAS / FUEL	
			DEMAND					
		CONSUMPTION	METERED	CHARGED	COST OF DEMAND	TOTAL ALL ELECTRICAL	CONSUMPTION	$
MONTH	YEAR	KWH	KW/KVA	KW/KVA	$	COSTS $	MCF	COSTS
MAY	2008	37,600	0	0	0	3,473	11	$195
JUNE	2008	51,600	0	0	0	5,186	1	$26
JULY	2008	54,600	0	0	0	4,743	1	$33
AUGUST	2008	54,200	0	0	0	4,227	6	$90
SEPTEMBER	2008	58,400	0	0	0	4,672	15	$208
OCTOBER	2008	49,600	0	0	0	3,679	44	$458
NOVEMBER	2008	40,200	0	0	0	3,061	138	$1,144
DECEMBER	2008	42,200	0	0	0	3,008	312	$3,141
JANUARY	2009	45,400	0	0	0	3,260	430	$4,307
FEBRUARY	2009	40,600	0	0	0	3,494	201	$1,642
MARCH	2009	43,400	0	0	0	4,500	106	$819
APRIL	2009	37,000	0	0	0	3,900	66	$519
TOTAL		**554,800**	**0**	**0**	**0**	**$47,203**	**1,331**	**$12,581**

Annual Total Energy Cost = $59,784 Per Year

Total KWH x 0.003413 = 1,893.53 x 106
Total MCF x 1.03 = 1,370.42 x 106
Total Other x ____ x 106
Total Site BTU's/yr 3,263.95 x 106

Floor area: 56,788 s.f.

Energy Use Index:
Total Site BTU's/yr / Total Area (sq.ft.) 57,476 BTU/s.f.yr

Energy Cost Index:
Total Energy Cost/yr / Total Area (sq.ft.) $1.05 $/s.f. yr

Electric Utility	**Account #**	**Meter#**	**Gas Utility**	**Account #**
	9674788580	428976477		

APPENDIX IV

ENERGY POLICY

ENERGY POLICY

[Name of Institution]

Recognizing our responsibility as Trustees of ______________________________,
we believe that every effort should be made to conserve energy and natural resources. As a result, we are establishing this Energy Management Policy which shall be implemented within each of our facilities. We believe that this policy will be beneficial for taxpayers and community residents in the prudent management of our financial and energy resources.

The fulfillment of this policy shall be the joint responsibility of the trustees, administrators, staff and support personnel. The success of the policy is dependent upon total cooperation from all levels within the system.

The board will designate an Energy Manager to coordinate and implement the overall Energy Policy. The Energy Manager will also maintain accurate records of energy consumption and cost on a monthly and annual basis. Energy audits will be conducted annually at each facility and recommendations will be made for updating and improving the energy program. Energy efficiency guidelines and procedures will be reviewed and accepted or rejected by the board. In addition, the procedures required for implementation of the program, and the results achieved from its administration, will be published for administrative and staff information.

Adopted this________day of ________________________, 200 .

____
President, Board of Trustees

Attest: ______________________________
Secretary, Board of Trustees

APPENDIX V

Preliminary Energy Assessment Service Agreement

Jun. 15. 2009 10:03AM No. 3393 P. 1

Preliminary Energy Assessment Service Agreement

Investing in our communities through improved energy efficiency in public buildings is a win-win opportunity for our communities and the State. Energy-efficient buildings reduce energy costs, increase available capital, spur economic growth, and improve working and living environments. The Preliminary Energy Assessment Service provides a viable strategy to achieve these goals.

Description of the Service

The State Energy Conservation Office (SECO) will analyze electric, gas and other utility data and work with MEMPHIS ISD , hereinafter referred to as Partner, to identify energy cost-savings potential. To achieve this potential, SECO and Partner have agreed to work together to complete an energy assessment of mutually selected facilities.

SECO agrees to provide this service at no cost to the Partner with the understanding that the Partner is ready and willing to consider implementing the energy savings recommendations.

Principles of the Agreement

Specific responsibilities of the Partner and SECO in this agreement are listed below.

- Partner will select a contact person to work with SECO and its contractor to establish an Energy Policy and set realistic energy efficiency goals.
- SECO's contractor will go on site to provide walk through assessments of selected facilities. SECO will provide a report which identifies no cost/low cost recommendations, Capital Retrofit Projects, and potential sources of funding. Portions of this report may be posted on the SECO Website.
- Partner will schedule a time for SECO's contractor to make a presentation of the assessment findings and recommendations to key decision makers.

Acceptance of Agreement

This agreement should be signed by your organization's chief executive officer or other upper management staff

Signature: Tanya Monroe Date: 6/12/09

Name (Mr./Ms./Dr.): Ms. Tanya Monroe Title: Supt.

Organization: Memphis ISD Phone: 806-259-2443

Street Address: 1501 High St. Fax: 806-259-2515

Mailing Address: Box 460 EMail: tanya.monroe@region16.net

Memphis, TX 79245 County: Hall

CONTACT INFORMATION:

Name (Mr./Ms./Dr.): Same Title:

Phone: Fax:

E-Mail: County:

Please sign & FAX or mail to Glenda Baldwin at State Energy Conservation Office. **FAX: 512 475 2569**
Address: LBJ State Office Building, 111 E. 17th Street, Austin, Texas 78774. Phone: 512-463-1731
AND also, please fax a copy to your SECO Contractor, ESA Energy Systems Associates, Inc.; Attn: Yvonne Huneycutt **FAX: 512-388-3312** Phone: 512-258-0547 x124

APPENDIX VI

AMORTIZATION SCHEDULE

Loan Amortization Schedule

	Enter values
Loan amount	$ 129,094.00
Annual interest rate	5.00 %
Loan period in years	10
Number of payments per year	12
Start date of loan	7/1/2009
Optional extra payments	$ -

	Loan summary
Scheduled payment	$ 1,369.24
Scheduled number of payments	120
Actual number of payments	120
Total early payments	$ -
Total interest	$ 35,215.06

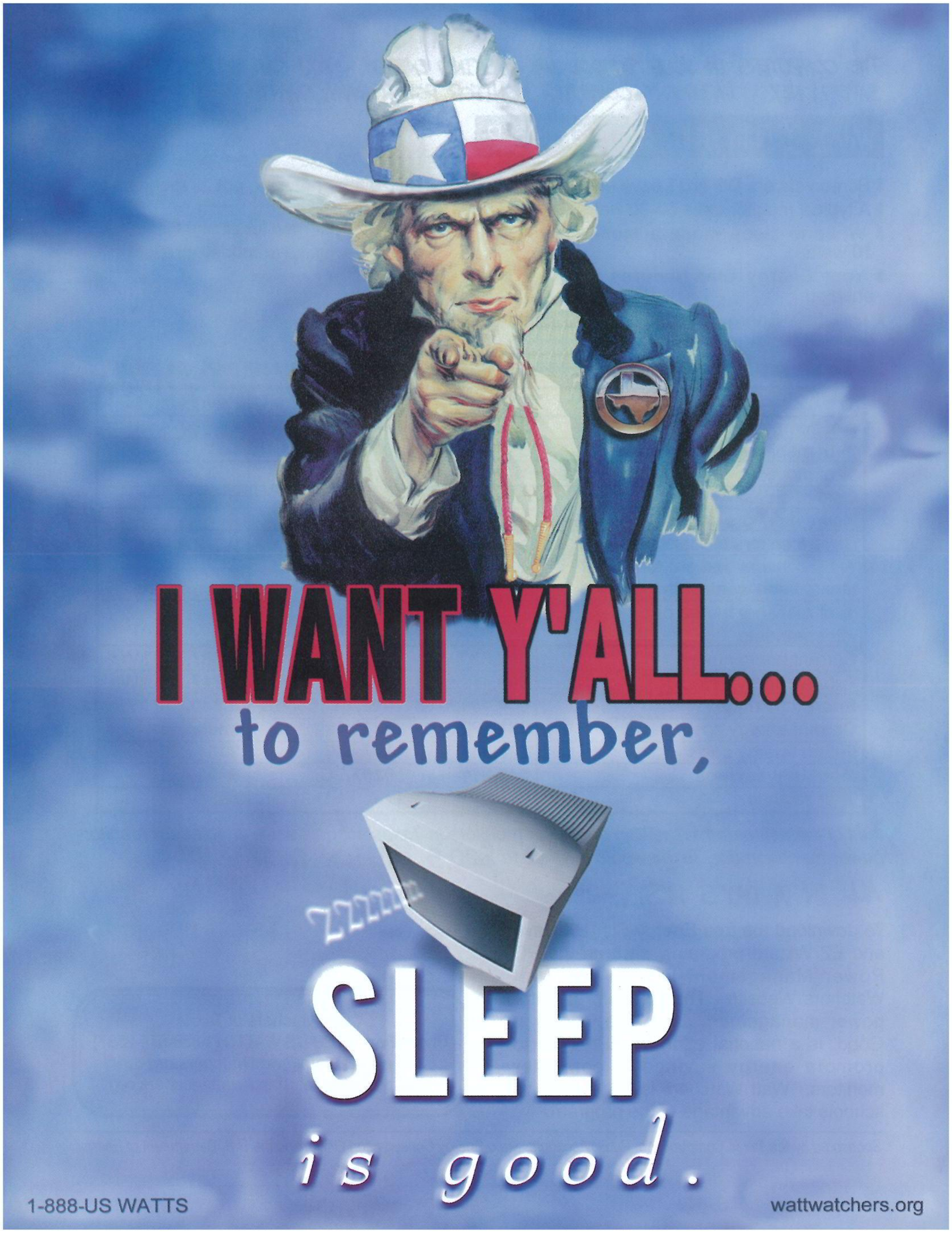
Lender name:

Pmt No.	Payment Date	Beginning Balance	Scheduled Payment	Extra Payment	Total Payment	Principal	Interest	Ending Balance	Cumulative Interest
1	8/1/2009	$ 129,094.00	$ 1,369.24	$ -	$ 1,369.24	$ 831.35	$ 537.89	$ 128,262.65	$ 537.89
2	9/1/2009	128,262.65	1,369.24	-	1,369.24	834.81	534.43	127,427.84	1,072.32
3	10/1/2009	127,427.84	1,369.24	-	1,369.24	838.29	530.95	126,589.54	1,603.27
4	11/1/2009	126,589.54	1,369.24	-	1,369.24	841.79	527.46	125,747.76	2,130.73
5	12/1/2009	125,747.76	1,369.24	-	1,369.24	845.29	523.95	124,902.46	2,654.67
6	1/1/2010	124,902.46	1,369.24	-	1,369.24	848.82	520.43	124,053.65	3,175.10
7	2/1/2010	124,053.65	1,369.24	-	1,369.24	852.35	516.89	123,201.30	3,691.99
8	3/1/2010	123,201.30	1,369.24	-	1,369.24	855.90	513.34	122,345.39	4,205.33
9	4/1/2010	122,345.39	1,369.24	-	1,369.24	859.47	509.77	121,485.92	4,715.10
10	5/1/2010	121,485.92	1,369.24	-	1,369.24	863.05	506.19	120,622.87	5,221.29
11	6/1/2010	120,622.87	1,369.24	-	1,369.24	866.65	502.60	119,756.23	5,723.89
12	7/1/2010	119,756.23	1,369.24	-	1,369.24	870.26	498.98	118,885.97	6,222.87
13	8/1/2010	118,885.97	1,369.24	-	1,369.24	873.88	495.36	118,012.08	6,718.23
14	9/1/2010	118,012.08	1,369.24	-	1,369.24	877.53	491.72	117,134.56	7,209.95
15	10/1/2010	117,134.56	1,369.24	-	1,369.24	881.18	488.06	116,253.38	7,698.01
16	11/1/2010	116,253.38	1,369.24	-	1,369.24	884.85	484.39	115,368.52	8,182.40
17	12/1/2010	115,368.52	1,369.24	-	1,369.24	888.54	480.70	114,479.98	8,663.10
18	1/1/2011	114,479.98	1,369.24	-	1,369.24	892.24	477.00	113,587.74	9,140.10
19	2/1/2011	113,587.74	1,369.24	-	1,369.24	895.96	473.28	112,691.78	9,613.38
20	3/1/2011	112,691.78	1,369.24	-	1,369.24	899.69	469.55	111,792.09	10,082.93
21	4/1/2011	111,792.09	1,369.24	-	1,369.24	903.44	465.80	110,888.65	10,548.73
22	5/1/2011	110,888.65	1,369.24	-	1,369.24	907.21	462.04	109,981.44	11,010.77
23	6/1/2011	109,981.44	1,369.24	-	1,369.24	910.99	458.26	109,070.45	11,469.02
24	7/1/2011	109,070.45	1,369.24	-	1,369.24	914.78	454.46	108,155.67	11,923.48
25	8/1/2011	108,155.67	1,369.24	-	1,369.24	918.59	450.65	107,237.08	12,374.13
26	9/1/2011	107,237.08	1,369.24	-	1,369.24	922.42	446.82	106,314.66	12,820.95
27	10/1/2011	106,314.66	1,369.24	-	1,369.24	926.26	442.98	105,388.39	13,263.93
28	11/1/2011	105,388.39	1,369.24	-	1,369.24	930.12	439.12	104,458.27	13,703.05
29	12/1/2011	104,458.27	1,369.24	-	1,369.24	934.00	435.24	103,524.27	14,138.29
30	1/1/2012	103,524.27	1,369.24	-	1,369.24	937.89	431.35	102,586.38	14,569.64
31	2/1/2012	102,586.38	1,369.24	-	1,369.24	941.80	427.44	101,644.58	14,997.09
32	3/1/2012	101,644.58	1,369.24	-	1,369.24	945.72	423.52	100,698.86	15,420.61
33	4/1/2012	100,698.86	1,369.24	-	1,369.24	949.66	419.58	99,749.19	15,840.19
34	5/1/2012	99,749.19	1,369.24	-	1,369.24	953.62	415.62	98,795.57	16,255.81
35	6/1/2012	98,795.57	1,369.24	-	1,369.24	957.59	411.65	97,837.98	16,667.45
36	7/1/2012	97,837.98	1,369.24	-	1,369.24	961.58	407.66	96,876.40	17,075.11
37	8/1/2012	96,876.40	1,369.24	-	1,369.24	965.59	403.65	95,910.80	17,478.76
38	9/1/2012	95,910.80	1,369.24	-	1,369.24	969.61	399.63	94,941.19	17,878.39
39	10/1/2012	94,941.19	1,369.24	-	1,369.24	973.65	395.59	93,967.54	18,273.98
40	11/1/2012	93,967.54	1,369.24	-	1,369.24	977.71	391.53	92,989.83	18,665.51
41	12/1/2012	92,989.83	1,369.24	-	1,369.24	981.78	387.46	92,008.04	19,052.97
42	1/1/2013	92,008.04	1,369.24	-	1,369.24	985.88	383.37	91,022.17	19,436.34
43	2/1/2013	91,022.17	1,369.24	-	1,369.24	989.98	379.26	90,032.18	19,815.60
44	3/1/2013	90,032.18	1,369.24	-	1,369.24	994.11	375.13	89,038.08	20,190.73
45	4/1/2013	89,038.08	1,369.24	-	1,369.24	998.25	370.99	88,039.83	20,561.72
46	5/1/2013	88,039.83	1,369.24	-	1,369.24	1,002.41	366.83	87,037.42	20,928.56
47	6/1/2013	87,037.42	1,369.24	-	1,369.24	1,006.59	362.66	86,030.83	21,291.21
48	7/1/2013	86,030.83	1,369.24	-	1,369.24	1,010.78	358.46	85,020.05	21,649.67
49	8/1/2013	85,020.05	1,369.24	-	1,369.24	1,014.99	354.25	84,005.06	22,003.92
50	9/1/2013	84,005.06	1,369.24	-	1,369.24	1,019.22	350.02	82,985.84	22,353.94
51	10/1/2013	82,985.84	1,369.24	-	1,369.24	1,023.47	345.77	81,962.37	22,699.72
52	11/1/2013	81,962.37	1,369.24	-	1,369.24	1,027.73	341.51	80,934.64	23,041.23
53	12/1/2013	80,934.64	1,369.24	-	1,369.24	1,032.01	337.23	79,902.62	23,378.46
54	1/1/2014	79,902.62	1,369.24	-	1,369.24	1,036.31	332.93	78,866.31	23,711.38
55	2/1/2014	78,866.31	1,369.24	-	1,369.24	1,040.63	328.61	77,825.67	24,039.99
56	3/1/2014	77,825.67	1,369.24	-	1,369.24	1,044.97	324.27	76,780.71	24,364.27
57	4/1/2014	76,780.71	1,369.24	-	1,369.24	1,049.32	319.92	75,731.38	24,684.19
58	5/1/2014	75,731.38	1,369.24	-	1,369.24	1,053.69	315.55	74,677.69	24,999.73
59	6/1/2014	74,677.69	1,369.24	-	1,369.24	1,058.09	311.16	73,619.60	25,310.89
60	7/1/2014	73,619.60	1,369.24	-	1,369.24	1,062.49	306.75	72,557.11	25,617.64
61	8/1/2014	72,557.11	1,369.24	-	1,369.24	1,066.92	302.32	71,490.19	25,919.96
62	9/1/2014	71,490.19	1,369.24	-	1,369.24	1,071.37	297.88	70,418.82	26,217.84
63	10/1/2014	70,418.82	1,369.24	-	1,369.24	1,075.83	293.41	69,342.99	26,511.25
64	11/1/2014	69,342.99	1,369.24	-	1,369.24	1,080.31	288.93	68,262.68	26,800.18
65	12/1/2014	68,262.68	1,369.24	-	1,369.24	1,084.81	284.43	67,177.86	27,084.60

Pmt No.	Payment Date	Beginning Balance	Scheduled Payment	Extra Payment	Total Payment	Principal	Interest	Ending Balance	Cumulative Interest
66	1/1/2015	67,177.86	1,369.24	-	1,369.24	1,089.33	279.91	66,088.53	27,364.51
67	2/1/2015	66,088.53	1,369.24	-	1,369.24	1,093.87	275.37	64,994.66	27,639.88
68	3/1/2015	64,994.66	1,369.24	-	1,369.24	1,098.43	270.81	63,896.23	27,910.69
69	4/1/2015	63,896.23	1,369.24	-	1,369.24	1,103.01	266.23	62,793.22	28,176.93
70	5/1/2015	62,793.22	1,369.24	-	1,369.24	1,107.60	261.64	61,685.61	28,438.57
71	6/1/2015	61,685.61	1,369.24	-	1,369.24	1,112.22	257.02	60,573.40	28,695.59
72	7/1/2015	60,573.40	1,369.24	-	1,369.24	1,116.85	252.39	59,456.54	28,947.98
73	8/1/2015	59,456.54	1,369.24	-	1,369.24	1,121.51	247.74	58,335.04	29,195.71
74	9/1/2015	58,335.04	1,369.24	-	1,369.24	1,126.18	243.06	57,208.86	29,438.78
75	10/1/2015	57,208.86	1,369.24	-	1,369.24	1,130.87	238.37	56,077.98	29,677.15
76	11/1/2015	56,077.98	1,369.24	-	1,369.24	1,135.58	233.66	54,942.40	29,910.80
77	12/1/2015	54,942.40	1,369.24	-	1,369.24	1,140.32	228.93	53,802.08	30,139.73
78	1/1/2016	53,802.08	1,369.24	-	1,369.24	1,145.07	224.18	52,657.02	30,363.91
79	2/1/2016	52,657.02	1,369.24	-	1,369.24	1,149.84	219.40	51,507.18	30,583.31
80	3/1/2016	51,507.18	1,369.24	-	1,369.24	1,154.63	214.61	50,352.55	30,797.92
81	4/1/2016	50,352.55	1,369.24	-	1,369.24	1,159.44	209.80	49,193.11	31,007.73
82	5/1/2016	49,193.11	1,369.24	-	1,369.24	1,164.27	204.97	48,028.84	31,212.70
83	6/1/2016	48,028.84	1,369.24	-	1,369.24	1,169.12	200.12	46,859.72	31,412.82
84	7/1/2016	46,859.72	1,369.24	-	1,369.24	1,173.99	195.25	45,685.72	31,608.07
85	8/1/2016	45,685.72	1,369.24	-	1,369.24	1,178.88	190.36	44,506.84	31,798.42
86	9/1/2016	44,506.84	1,369.24	-	1,369.24	1,183.80	185.45	43,323.04	31,983.87
87	10/1/2016	43,323.04	1,369.24	-	1,369.24	1,188.73	180.51	42,134.31	32,164.38
88	11/1/2016	42,134.31	1,369.24	-	1,369.24	1,193.68	175.56	40,940.63	32,339.94
89	12/1/2016	40,940.63	1,369.24	-	1,369.24	1,198.66	170.59	39,741.97	32,510.53
90	1/1/2017	39,741.97	1,369.24	-	1,369.24	1,203.65	165.59	38,538.32	32,676.12
91	2/1/2017	38,538.32	1,369.24	-	1,369.24	1,208.67	160.58	37,329.66	32,836.70
92	3/1/2017	37,329.66	1,369.24	-	1,369.24	1,213.70	155.54	36,115.96	32,992.24
93	4/1/2017	36,115.96	1,369.24	-	1,369.24	1,218.76	150.48	34,897.20	33,142.72
94	5/1/2017	34,897.20	1,369.24	-	1,369.24	1,223.84	145.40	33,673.36	33,288.12
95	6/1/2017	33,673.36	1,369.24	-	1,369.24	1,228.94	140.31	32,444.42	33,428.43
96	7/1/2017	32,444.42	1,369.24	-	1,369.24	1,234.06	135.19	31,210.37	33,563.61
97	8/1/2017	31,210.37	1,369.24	-	1,369.24	1,239.20	130.04	29,971.17	33,693.66
98	9/1/2017	29,971.17	1,369.24	-	1,369.24	1,244.36	124.88	28,726.81	33,818.54
99	10/1/2017	28,726.81	1,369.24	-	1,369.24	1,249.55	119.70	27,477.26	33,938.23
100	11/1/2017	27,477.26	1,369.24	-	1,369.24	1,254.75	114.49	26,222.50	34,052.72
101	12/1/2017	26,222.50	1,369.24	-	1,369.24	1,259.98	109.26	24,962.52	34,161.98
102	1/1/2018	24,962.52	1,369.24	-	1,369.24	1,265.23	104.01	23,697.29	34,265.99
103	2/1/2018	23,697.29	1,369.24	-	1,369.24	1,270.50	98.74	22,426.79	34,364.73
104	3/1/2018	22,426.79	1,369.24	-	1,369.24	1,275.80	93.44	21,150.99	34,458.18
105	4/1/2018	21,150.99	1,369.24	-	1,369.24	1,281.11	88.13	19,869.88	34,546.30
106	5/1/2018	19,869.88	1,369.24	-	1,369.24	1,286.45	82.79	18,583.43	34,629.10
107	6/1/2018	18,583.43	1,369.24	-	1,369.24	1,291.81	77.43	17,291.62	34,706.53
108	7/1/2018	17,291.62	1,369.24	-	1,369.24	1,297.19	72.05	15,994.42	34,778.58
109	8/1/2018	15,994.42	1,369.24	-	1,369.24	1,302.60	66.64	14,691.82	34,845.22
110	9/1/2018	14,691.82	1,369.24	-	1,369.24	1,308.03	61.22	13,383.80	34,906.43
111	10/1/2018	13,383.80	1,369.24	-	1,369.24	1,313.48	55.77	12,070.32	34,962.20
112	11/1/2018	12,070.32	1,369.24	-	1,369.24	1,318.95	50.29	10,751.37	35,012.49
113	12/1/2018	10,751.37	1,369.24	-	1,369.24	1,324.44	44.80	9,426.93	35,057.29
114	1/1/2019	9,426.93	1,369.24	-	1,369.24	1,329.96	39.28	8,096.96	35,096.57
115	2/1/2019	8,096.96	1,369.24	-	1,369.24	1,335.50	33.74	6,761.46	35,130.31
116	3/1/2019	6,761.46	1,369.24	-	1,369.24	1,341.07	28.17	5,420.39	35,158.48
117	4/1/2019	5,420.39	1,369.24	-	1,369.24	1,346.66	22.58	4,073.73	35,181.06
118	5/1/2019	4,073.73	1,369.24	-	1,369.24	1,352.27	16.97	2,721.46	35,198.04
119	6/1/2019	2,721.46	1,369.24	-	1,369.24	1,357.90	11.34	1,363.56	35,209.38
120	7/1/2019	1,363.56	1,369.24	-	1,363.56	1,357.88	5.68	0.00	35,215.06

APPENDIX VII

SECO PROGRAM CONTACTS
WATT WATCHERS OF TEXAS


I WANT Y'ALL...
to remember,
SLEEP
is good.
1-888-US WATTS
wattwatchers.org

THE COMPUTERS IN YOUR SCHOOL ARE WASTING ENERGY. YOU CAN HELP YOUR SCHOOL SAVE MONEY. IMPLEMENT COMPUTER MONITOR POWER MANAGEMENT.

WHAT Y'ALL NEED TO REMEMBER:

- Screen savers **DO NOT** save energy!
- A typical monitor uses 60-90 watts
- While in sleep mode a monitor uses 2-10 watts
- Your Energy Star features may not be enabled
- Use free Energy Star software to capture savings
- Utilize your network, put all monitors to sleep at once
- Turn off your monitor at night
- Save energy, save money, prevent pollution

SOME ACTUAL EXAMPLES FROM DISTRICTS THAT ALREADY SET THEIR MONITORS TO SLEEP:

	District A	District B	District C
# of computers	3,000	10,000	15,000
% of monitors enabled	55	0	50
% of monitors enabled after mandate	100	100	100
Cost of electricity	7.5¢	5.8¢	6.0¢
Hours monitors are used per week	9	9	9
Days monitors are used per week	5	5	5
% of monitors that are turned off at night and weekends	35	35	35
% of monitors turned off after mandate	65	65	65
Current energy use	953,620 kWh	5,522,790 kWh	5,087,745 kWh
Future energy use	349,479 kWh	1,164,930 kWh	1,747,395 kWh
Energy savings	**604,141 kWh**	**4,357,860 kWh**	**3,340,350 kWh**
Current energy costs	$71,522	$320,322	$305,265
Future energy costs	$26,211	$67,566	$104,844
Monetary savings	**$45,311**	**$252,756**	**$200,421**
% of savings	63	79	65

If all of the estimated 1.2 million computer monitors in Texas schools were enabled for monitor power management, Texas would save up to **$20.5 MILLION EACH YEAR!**

ALL IN A DAY'S REST...

To download the free Energy Star EZ Save and EZ Wizard programs, click on the PC Power Management link on the Watt Watchers Website. The computer monitor power management campaign, Sleep is Good, is a national effort by EPA/DOE to promote energy savings in computer monitors. Watt Watchers is helping Texas schools take advantage of the program.

Watt Watchers of Texas
Phone/Fax 1-888-US WATTS (1-888-879-2887)
e-mail info@wattwatchers.org
Visit our website http://wattwatchers.org

Sponsored by the Texas Comptroller of Public Accounts, State Energy Conservation Office, and the U.S. Department of Energy.


I WANT Y'ALL
FOR WATT WATCHERS
1-888 US WATTS
wattwatchers.org
SPONSORED BY THE TEXAS STATE ENERGY CONSERVATION OFFICE

-IT'S FREE!-IT'S SIMPLE!-IT WORKS!-

START YOUR PROGRAM TODAY!

Watt Watchers of Texas is a FREE energy efficiency program for Texas schools sponsored by the Texas Comptroller of Public Accounts, State Energy Conservation Office, and the U.S. Department of Energy. The program is designed to help school districts save energy and money by getting students involved. It is simple and effective! Students patrol the halls of the schools reducing energy waste by turning off lights and leaving "tickets" for empty classrooms with the lights on. Turning out the lights in a classroom during two unoccupied hours per day (lunch & after school) can save $50 over a school year.

GET STARTED

Sign up for a free kit. Call 1-888-USWATTS or go on-line at http://wattwatchers.org to enroll. You will receive a free kit which includes a set of 4 Watt Watchers binders, 4 name badges and 4 name tags with 4 lanyards, 4 pencils, a complete instruction manual on CD-ROM, plus a supply of forms, sample tickets and thank you notes. Everything you need — open your kit and get started today! Not only will your school be provided with all of the materials listed above (approximately a $25 value), Watt Watchers will provide free support for the program, including:

- *WATTS NEWS* — Quarterly 20 page Newspaper
- Toll Free Phone & Toll Free Fax support line
- Website and e-mail support
- E-Mail Update – Monthly news for Watt Watchers
- Workshops – Watt Watchers sponsors regional workshops
- Conferences – Watt Watchers attends educational conferences – see you there.
- CD-ROM with all the materials – 0ver 450MB!
- Five Year Lapel Pins for dedicated Watt Watchers sponsors
- Watt Watchers Certificates for participation and Zero Hero Awards

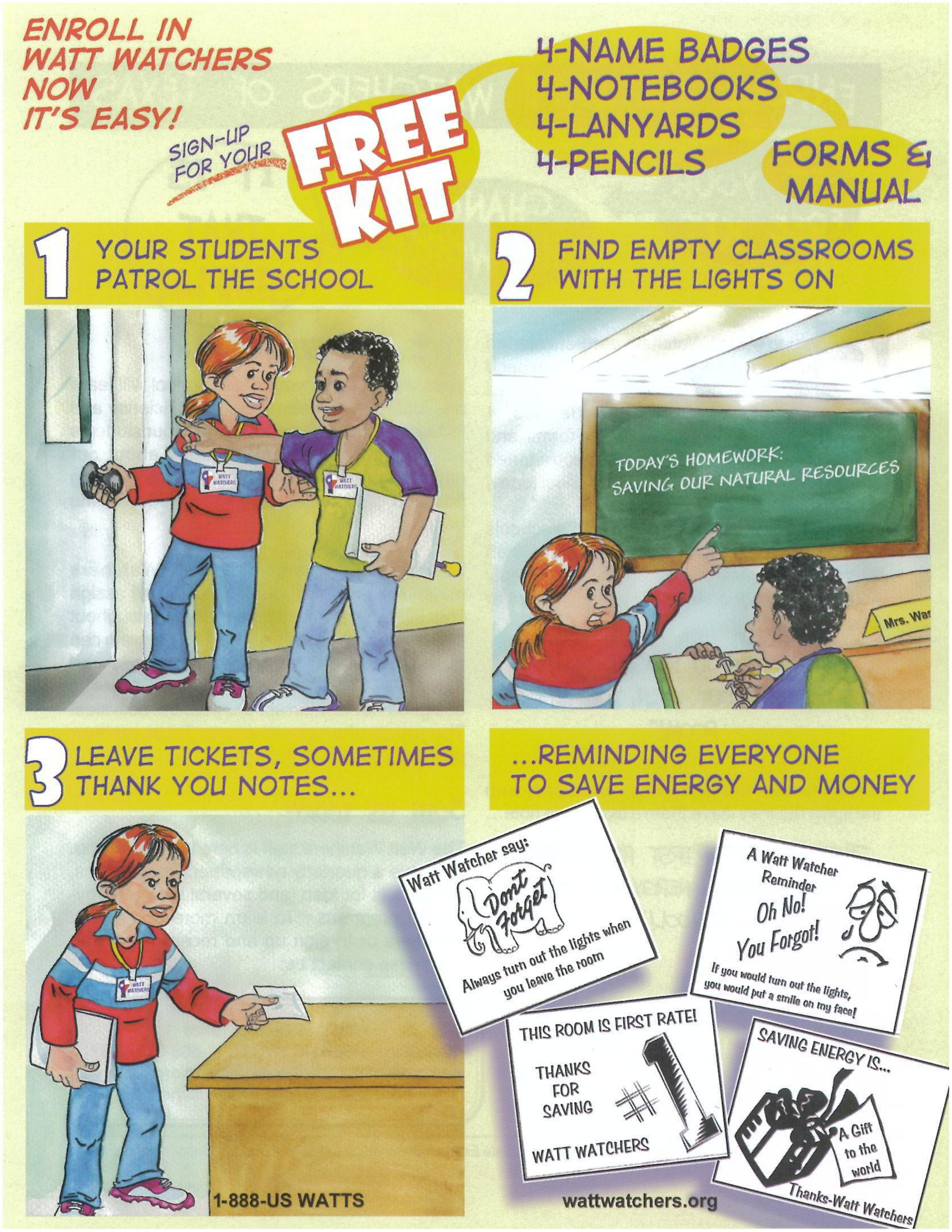
BUT THAT'S NOT ALL, Y'ALL!

In addition to student energy patrols that find waste and raise awareness, Watt Watchers also has additional programs for your school:

- Traveling Energy Exploration Stations – free loans of hands-on kits for classes
- Knowledge is Power – an energy efficiency curriculum supplement
- Sleep Is Good – a computer monitor power management program
- Junior Solar Sprint – a model solar race car project
- Energy Encounter – a one day workshop for high school students
- District Energy Council – students assisting energy managers
- The Weatherization Project – a residential community energy project
- Benchmarking – compare your school district energy use nationally

Watt Watchers of Texas
Phone/Fax 1-888-US WATTS (1-888-879-2887)
e-mail info@wattwatchers.org
Visit our website http://wattwatchers.org

Sponsored by the Texas Comptroller of Public Accounts, State Energy Conservation Office, and the U.S. Department of Energy.


ENROLL IN
WATT WATCHERS
NOW
IT'S EASY!
SIGN-UP FOR YOUR
FREE KIT
4-NAME BADGES
4-NOTEBOOKS
4-LANYARDS
4-PENCILS
FORMS & MANUAL
1 YOUR STUDENTS PATROL THE SCHOOL
2 FIND EMPTY CLASSROOMS WITH THE LIGHTS ON
TODAY'S HOMEWORK:
SAVING OUR NATURAL RESOURCES
3 LEAVE TICKETS, SOMETIMES THANK YOU NOTES...
...REMINDING EVERYONE TO SAVE ENERGY AND MONEY
Watt Watcher say:
Don't Forget
Always turn out the lights when you leave the room
A Watt Watcher Reminder
Oh No! You Forgot!
If you would turn out the lights, you would put a smile on my face!
THIS ROOM IS FIRST RATE!
THANKS FOR SAVING
WATT WATCHERS
SAVING ENERGY IS...
A Gift to the world
Thanks-Watt Watchers
1-888-US WATTS
wattwatchers.org

ENROLL IN WATT WATCHERS OF TEXAS

Getting a Watt Watchers program started in your school is so simple. All you need to do is order the FREE kit! Your kit comes complete with 4 name badges, 4 lanyards, 4 notebooks, 4 pencils, the forms, and a CD-ROM with a manual to get you started saving energy and money for your school today!

Your students will patrol the halls of the schools to see where energy is being wasted. When they locate a classroom or office that is empty and the lights are on they will leave a reminder ticket …

"OH, NO –YOU FORGOT TO TURN YOUR LIGHTS OUT WHEN YOU LEFT THE ROOM!"

If they notice classrooms that consistently turn the lights out they leave them a thank-you note…

"THIS ROOM IS FIRST RATE –THANKS FOR SAVING ENERGY FOR OUR SCHOOL!"

IT IS THAT SIMPLE.

Your students and your entire school will learn a valuable lesson about energy efficiency and its benefits that will last a lifetime. Your students will change habits and attitudes about our environment while saving money and preventing pollution. You will change the world for the better.

Teachers, just place the Watt Watchers materials in a bin at your front door and assign your students a time to go on patrols throughout the day and the work is done. The program can be adapted to fit your teaching needs and demands. The Watt Watchers program is designed not to interrupt daily school activities. Thousands of programs across Texas are now patrolling quickly and quietly.

JOIN US TODAY!

The Watt Watchers staff is here to support you. We have a quarterly newspaper, lesson plans, energy kits for loan, and several more energy-related programs. To learn more about Watt Watchers or to sign up and receive your free kit, please contact us:

Watt Watchers of Texas
Phone/Fax 1-888-US WATTS (1-888-879-2887)
e-mail info@wattwatchers.org
Visit our website http://wattwatchers.org

Sponsored by the Texas Comptroller of Public Accounts, State Energy Conservation Office, and the U.S. Department of Energy

APPENDIX VIII

TEXAS ENERGY MANAGERS ASSOCIATION (TEMA)

ANNOUNCING!

TEMA

TEXAS ENERGY MANAGERS ASSOCIATION

A PROFESSIONAL ASSOCIATION FOR THOSE RESPONSIBLE FOR ENERGY MANAGEMENT IN TEXAS PUBLIC FACILITIES

- Networking
- Sharing Knowledge and Resources
- Training Workshops
- Regional Meetings
- Annual Conference
- Certification
- Legislative Updates
- Money-Saving Opportunities

WWW.TEXASEMA.ORG

Check the website for Membership and Association information.

Texas Energy Managers Association

SECO
State Energy Conservation Office

APPENDIX IX

UTILITY CHARTS ON DISKETTE